

Waves, Sound, and Light:

Ch. 11.3 - 11.4

Ch. 12.1 - 12.3

Ch. 13.1 and 13.4

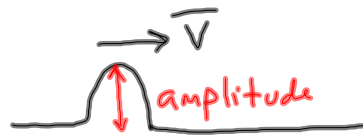
Ch. 14.1 and 14.3

Ch. 15.1 - 15.3

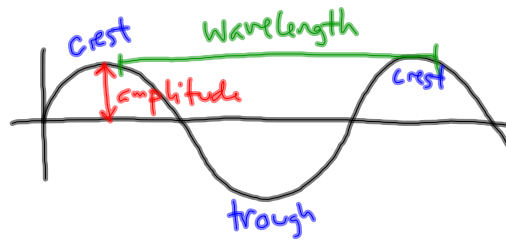
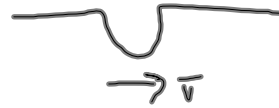
How is a wave created?

- Vibrations
- Energy released
- Vibrations in a space
- Poseidon
- Moving an object
 - Vocal cords
 - Plucking a string
 - Piece in a subwoofer
 - Bats/Dolphins

Wave Definitions:



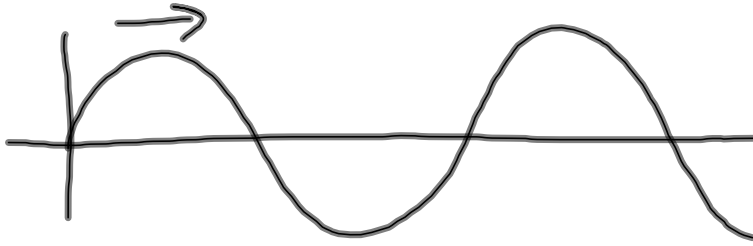
Wave pulse



- Measure wavelength from same point on curve (peak to peak, trough to trough, etc.)
- Use the letter λ for wavelength
- Wavelength's unit is meters
- Amplitude's unit is also meters
- frequency \rightarrow cycles per unit time
- unit for frequency is Hertz ($\text{Hz} = \frac{1}{\text{s}}$)
- Period \rightarrow time to complete one full cycle
(T)
- Unit for period is seconds
- relationship between f and T is:

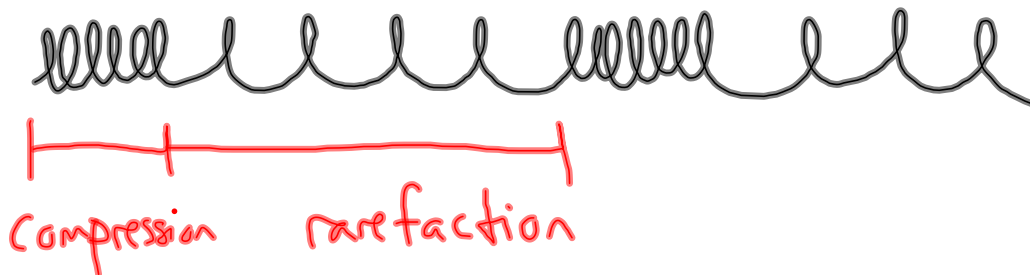
$$T = \frac{1}{f}$$

Transverse Wave:



- amplitude \perp to wave motion

Longitudinal Wave

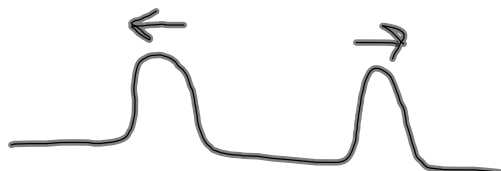
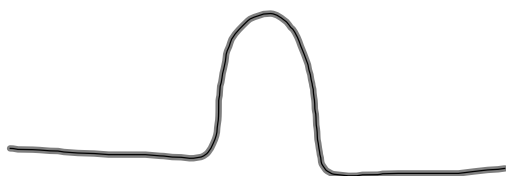
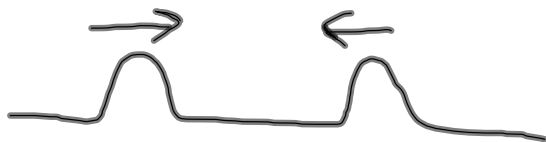


Relationship between wave speed,
wavelength, and frequency:

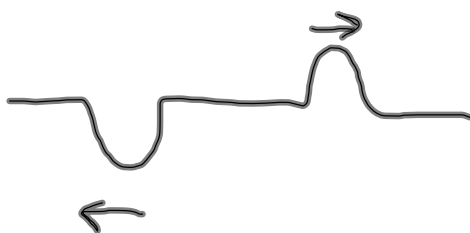
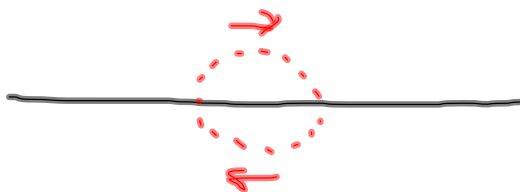
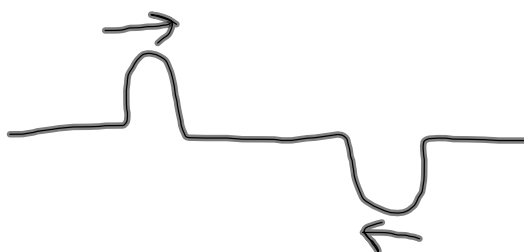
$$V = \lambda f = \frac{\lambda}{T}$$

Wave Combinations:

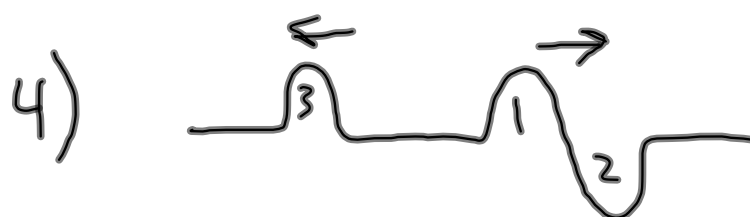
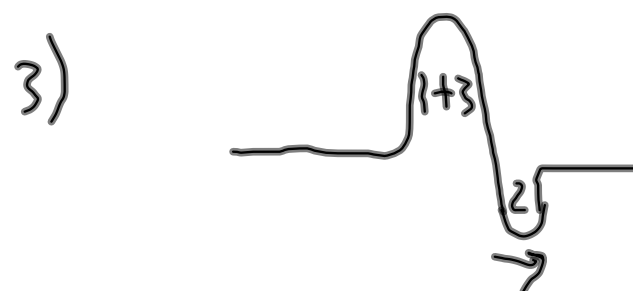
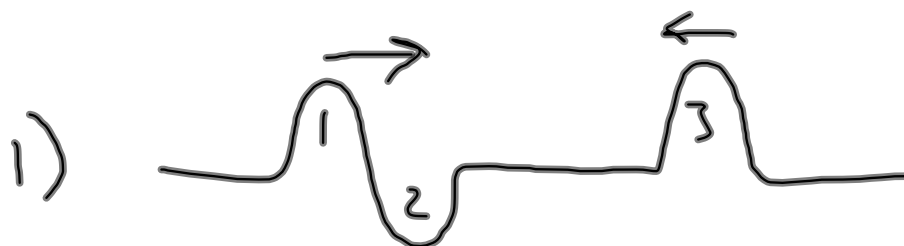
- Constructive Interference



- Destructive Interference:



Example:



Example 2:

